DEPARTMENT OF THE NAVY
NAVAL AIR SYSTEMS COMMAND
NAVAL AIR SYSTEMS COMMAND HEADQUARTERS
WASHINGTON, DC 20361

IN REPLY REFER TO
NAVAIRINST 4731.1
AIR-411
3 Dec 84

NAVAIR INSTRUCTION 4731.1

From: Commander, Naval Air Systems Command

Subj: NAVY OIL ANALYSIS PROGRAM FOR AERONAUTICAL EQUIPMENT

Ref: (a) OPNAVINST 4731.1, Joint Oil Analysis Program (JOAP)
(b) NAVMATINST 4731.1A, Navy Oil Analysis Program (NOAP)
(c) NAVAIR 17-15-50, Joint Oil Analysis Program Laboratory Manual (NOTAL)
(d) OPNAVINST 4790.2C, Naval Aviation Maintenance Program (NAMP)

1. Purpose. To implement references (a) and (b), provide policy and guidance, and assign responsibilities to ensure effective and efficient operation of the Navy Oil Analysis Program for Aeronautical Equipment (NOAP-AE) within the Naval Air Systems Command (NAVAIR).

2. Background. Oil analysis diagnostic programs are used to determine the condition of in-use oil and other fluids, in order to detect the presence of wear metals as a means of identifying early wear and to predict or prevent failure of mechanical equipment. Reference (a) provides statements of policy and implements guidance concerning the Joint Oil Analysis Program (JOAP). The JOAP is a combined effort of the Army, Navy, and Air Force to establish and maintain standardized oil analysis programs. Reference (b) establishes the Navy Oil Analysis Program (NOAP), operated in conformance with reference (a), and accommodates the unique needs of the Navy and Marine Corps operating forces. References (c) and (d) provide operating activities and Navy oil analysis laboratories guidelines on applications to aeronautical equipment. Although NOAP has been in existence for several years in naval aviation, life cycle logistics (LCL) management procedures for the program have not been promulgated. This instruction provides guidance for LCL management and other improved procedures.

3. Scope. All applicable Navy material items for which NAVAIR is assigned material support responsibility are covered by this instruction.

4. Objectives

a. Achieve required performance, efficiency, and logistic support by establishing policies for an integrated oil analysis program within the Navy for monitoring the condition of oil wetted lubrication systems by the periodic analysis of fluid samples for wear metal debris and other contaminants.

b. Obtain maximum efficiency in the management of NOAP-AE with respect to equipment cost, response time, utilization of analysis, and improvement in state of the art to support reliability-centered maintenance (RCM) principles.

5. Policy. NOAP-AE plans, programs, and operations will be integrated with those of the Naval Sea Systems Command (NAVSEA) and the Marine Corps to

provide a complete NOAP for aeronautical, surface, and ground equipment for incorporation into the JOAP. Specific NAVAIR policies are as follows:

a. Activities under the cognizance of NAVAIR will apply NOAP-AE to all fluid lubricated aircraft systems (e.g., engines, transmissions, constant speed drives, gearboxes, auxiliary power units) and support equipment (SE) (e.g., SE gas turbine engines and internal combustion engines). A cognizant field activity (CFA) may delete a type, model, or series of system, with Commander, Naval Air Systems Command (COMNAVAIR) and aircraft controlling custodian (ACC) concurrence. However, a recommendation for deletion must be supported by RCM analysis.

b. Existing NOAP-AE laboratories listed in reference (c) will not be closed or relocated, nor will new laboratories be established without review and approval by COMNAVAIR to assure joint service coordination.

c. NOAP-AE equipment configuration is subject to the NAVAIR configuration management program. Therefore, approval by COMNAVAIR is required prior to making any modifications to NOAP-AE equipment or analysis programs.

6. Responsibilities. COMNAVAIR and the Commander, Naval Sea Systems Command (COMNAVSEA) are assigned joint responsibility by reference (b) for administering NOAP and providing support to the Navy Oil Analysis Program Management Office (NOAP-MO) and the Joint Oil Analysis Program Technical Support Center (JOAP TSC). Specific responsibilities are as follows:

a. The Naval Air Systems Command Headquarters (NAVAIRHQ)

(1) The Maintenance Policy and Planning Division (AIR-411) is designated as the NOAP-AE Program Manager and will

(a) maintain close coordination with NAVSEA and Headquarters, Marine Corps, to ensure that NOAP-AE policies, plans, and programs are in consonance with those of NAVSEA and the Marine Corps;

(b) establish and promulgate NOAP-AE policy;

(c) provide budgetary support to the NOAP-MO and JOAP-TSC;

(d) coordinate NAVAIR review of the annual and 5-year NOAP and NOAP-AE operating plans and budget requirements;

(e) provide an O-5 grade officer to serve as the Director of the JOAP-TSC on a rotational basis with other JOAP services. While so assigned, the officer will receive administrative support from the Naval Air Rework Facility (NAVAIREWORKFAC), Pensacola; and

(f) ensure NAVAIR logistics managers are aware of and utilize oil analysis to the maximum extent possible as a preventative maintenance and condition monitoring technique.

(2) The Support Equipment Division (AIR-552) is designated as the NOAP-AE SE Program Manager for all NOAP-AE laboratory equipment and will

(a) plan, program, budget for, and conduct NOAP-AE SE engineering development programs based on current and 5-year NOAP-AE requirements;

(b) plan, program, budget for, and conduct service suitability test and evaluation projects for NOAP-AE SE, as well as incorporating supportability requirements;

(c) obtain approval for production of NOAP-AE SE following current directives;

(d) establish NOAP-AE SE requirements for use in determining equipment inventory allowances;

(e) plan, program, and budget for, and procure NOAP-AE SE to provide required equipment inventories;

(f) ensure integrated logistic support (ILS) and reliability and maintainability requirements are incorporated in the engineering development and production phases of the NOAP-AE SE program;

(g) maintain configuration control and in-service design engineering for NOAP-AE SE;

(h) recommend research, exploratory, and advanced development projects, and monitor such projects, as required; and

(i) maintain close liaison with the NOAP-MO, JOAP-TSC, and other services to ensure SE developed, tested, and procured for NOAP-AE has maximum triservice applicability and does not duplicate the efforts of the other services.

(3) The Support Equipment Logistics Management Division (AIR-417) is designated as the NOAP-AE SE Logistics Manager and will

(a) coordinate with AIR-552 to maintain quantitative inventory allowances for NOAP-AE SE;

(b) ensure LCL concepts are incorporated in the development and procurement plans, programs, and budgets for NOAP-AE SE;

(c) budget for calibration, logistics support, and depot level rework of NOAP-AE SE;

(d) plan and manage the ILS program for the total life cycle of NOAP-AE SE (including in-service logistics management);

(e) monitor field activities and contractors regarding performance of SE ILS tasks and timely submission of SE ILS deliverables;

(f) coordinate NOAP-AE SE ship, shore, and mobile facility requirements with the appropriate NAVAIRHQ divisions; and

(g) participate in and support the NOAP-AE SE configuration

control process.

b. The Naval Aviation Logistics Center is the responsible manager for the oil analysis laboratory at each NAVAIREWORKFAC, and will ensure that the intent of references (a) through (d) and this instruction are implemented to include

(1) current oil analysis laboratories at each NAVAIREWORKFAC providing oil analysis services as described in reference (c);

(2) providing facilities and administrative support for the JOAP-TSC at NAVAIREWORKFAC, Pensacola;

(4) providing capability to manufacture spectrometric oil analysis calibration standards to support the JOAP/NOAP program; and

(5) coordinating laboratory work load changes following reference (c).

c. The NOAP-MO, established at NAVAIREWORKFAC, Pensacola by reference (b), is assigned responsibility by reference (a) to provide interservice and intra-service policy coordination. The NOAP-MO will

(1) represent the interests of NAVAIR, NAVSEA, and the Marine Corps by functioning as the Navy member of Joint Oil Analysis Program Coordination Group (JOAP-CG);

(2) review and correct areas of interservice disagreement and coordinate resolution of JOAP operating problems;

(3) review JOAP-TSC operations and provide guidance to ensure calibration, correlation, and test and evaluation programs are effective to support NOAP requirements;

(4) ensure that NOAP provides efficient interservice and intraservice use of oil analysis laboratories which includes standardized instrumentation, equipment, techniques, and procedures;

(5) ensure the JOAP data system provides reliable feedback on the accuracy of NOAP laboratory recommended maintenance actions;

(6) review, and modify as necessary, the annual and 5-year NOAP development plans, budgets, and ongoing operations;

(7) coordinate the establishment, relocation, and/or closure of NOAP laboratories;

(8) ensure the JOAP training program is effective in supporting NOAP laboratory operator requirements;

(9) ensure JOAP logistics support of oil analysis and data systems equipment effectively supports NOAP requirements;

(10) provide annual and 5-year projections of operating budget

requirements and justification to NAVAIR (AIR-411), including justification for contractor operated NOAP laboratories, for each budget review;

(11) maintain cognizance over reference (c) and prepare changes as needed to support JOAP operational requirements; and

(12) implement and maintain LCL concepts in all areas of NOAP.

d. The Naval Weapons Engineering Support Activity will function as the Navy Oil Analysis Program Data Analysis Office (NOAP-DAO). The NOAP-DAO will function under direction from COMNAVAIR and COMNAVSEA in coordination with the NOAP-MO by

(1) representing the NOAP-MO as the alternate Navy member of the JOAP-CG;

(2) assisting COMNAVAIR, COMNAVSEA, and the NOAP-MO in the coordination and operational management of the NOAP and its interrelationship with the JOAP;

(3) acting as the focal point for the NOAP data analysis and laboratory automation requirements;

(4) providing data analysis to activities within the NOAP in monitoring the NOAP for effectiveness, activity participation, and assessments of evaluation criteria;

(5) maintaining liaison with the NOAP-MO to ensure program continuity, operation, and improvement; and

(6) performing other NOAP/JOAP functions as assigned by COMNAVAIR and COMNAVSEA.

e. CFA's will

(1) for equipment under their cognizance, establish, maintain, and promulgate oil analysis requirements, sampling procedures and intervals, and laboratory evaluation criteria, using RCM analysis techniques, for inclusion into reference (c) and other publications as appropriate;

(2) make appropriate recommendations for equipment retention or deletion under the NOAP-AE. Recommendations for deletion must be supported by RCM analysis and have the concurrence of COMNAVAIR and the ACC's prior to approval;

(3) provide feedback to the NOAP laboratory and NOAP-DAO on each piece of equipment that was repaired as a result of a laboratory recommendation; and

(4) conduct engineering investigations (EI's) as appropriate to determine whether significant equipment problems are being revealed by laboratory recommendations. A copy of each EI concerning a NOAP laboratory recommendation for removal from service will be forwarded to the NOAP-MO and NOAP-DAO.

f. The Navy Aviation Supply Office (ASO) is responsible for

(1) stocking calibration standards utilized by JOAP laboratories;

(2) procuring laboratory equipment and spare and repair parts used within the NOAP-AE. Such equipment will be procured with the appropriate funds and to requirements based on end item allowances as established by NAVAIRHQ (AIR-552 and AIR-417). Procurements will be executed following policies and priorities established by COMNAVAIR, ASO, and the ACC's; and

(3) serving as the point of contact for coordinating supply related matters between the Navy and the other services.

g. The Naval Air Engineering Service Unit (NAESU) is responsible for

(1) providing onsite technical support for NOAP spectrometers in response to user requests;

(2) providing training and travel requirements within the NAESU operating budget to support onsite maintenance;

(3) notifying the NOAP-MO when contractor maintenance support is required by a NOAP laboratory; and

(4) providing inspection and verification support for newly established or relocated laboratories.

h. The Naval Air Technical Services Facility is responsible for budgeting for and managing the preparation, publication, and distribution of reference (c) and its changes.

i. NOAP-AE laboratories are responsible for acknowledging receipt and analysis to the quality assurance division of each activity submitting samples, and providing the CFA a copy of each recommendation requiring feedback information. Activities operating equipment being monitored by the NOAP-AE have the ultimate responsibility for compliance or noncompliance with recommendations made by the supporting laboratory.

j. Operating activities, intermediate maintenance activities, commercial rework and repair activities, and depots are responsible for advising the CFA of any action taken, maintenance performed, and/or discrepancies found as a result of NOAP-AE laboratory recommendations.

7. Action. Addressees will comply with policies and procedures of references (b), (c), and (d), and this instruction.

A. J. DiMASCIO
Deputy Commander

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